

WHAT IS CLAIMED IS:

1 1. A wiring board wherein an opening is defined at a
2 predetermined position of a film-like insulating substrate, an
3 electric wiring provided with a connection terminal covering the
4 opening is disposed on a principal plane of the insulating substrate,
5 and a conductive member to be connected with the connection terminal
6 of the electric wiring is disposed inside the opening, comprising:

7 said conductive member having a thickness from a surface on
8 which said electric wiring of the insulating substrate has been
9 disposed being thinner than that of said insulating substrate.

10 2. A wiring board as claimed in claim 2, wherein:
11 a thickness of said conductive member is $1/2$ or more of that
12 of said insulating substrate.

13 3. A wiring board as claimed in claim 1, wherein:
14 said conductive member has a thinner thickness at the central
15 portion of said opening than that of a vicinity of a side wall of
16 said opening.

17 4. A wiring board as claimed in claim 2, wherein:
18 said conductive member has a thinner thickness at the central
19 portion of said opening than that of a vicinity of a side wall of
20 said opening.

21 5. A wiring board as claimed in claim 1, wherein:
22 said conductive member is made from any member selected from

3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 6. A wiring board as claimed in claim 2, wherein:

2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 7. A wiring board as claimed in claim 3, wherein:

2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

8. A wiring board as claimed in claim 1, wherein:

a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

9. A wiring board as claimed in claim 2, wherein:

a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

10. A wiring board as claimed in claim 3, wherein:

a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

11. A wiring board as claimed in claim 4, wherein:

a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said

4 conductive member.

1 12. A semiconductor device wherein a wiring board in which
2 an opening is defined at a predetermined position of a film-like
3 insulating substrate, an electric wiring provided with a connection
4 terminal covering said opening is disposed on a principal plane
5 of said insulating substrate, and a conductive member to be connected
6 with the connection terminal of said electric wiring is disposed
7 inside the opening is placed; a semiconductor chip is placed on
8 the surface of said wiring board on which said electric wiring has
9 been disposed; the electric wiring of said wiring board is
10 electrically connected with an external electrode of the
11 semiconductor chip; and said semiconductor chip, said electric
12 wiring, and connecting section for said electric wiring and said
13 external electrode of the semiconductor chip are sealed with a
14 sealing insulator, comprising:

15 said conductive member having a thickness from a surface on
16 which said electric wiring of the insulating substrate has been
17 formed being thinner than that of said insulating substrate.

1 13. A semiconductor device as claimed in claim 12, wherein:
2 said semiconductor chip is placed in such that a surface opposed
3 to the surface on which said external electrode has been formed
4 is opposed to said wiring board; and

5 said external electrode is connected with said electric wiring
6 by means of a bonding wire.

1 14. A semiconductor device as claimed in claim 12, wherein:

2 said semiconductor chip is placed in such that said external
3 electrode thereof is opposed to said wiring board; and
4 said external electrode is connected with said electric wiring
5 by means of a protrusion conductor.

1 15. A semiconductor device as claimed in claim 8, wherein:
2 a thickness of said conductive member is 1/2 or more of that
3 of said insulating substrate.

16. A semiconductor device as claimed in claim 12, wherein:
a thickness of said conductive member is 1/2 or more of that
of said insulating substrate.

17. A semiconductor device as claimed in claim 13, wherein:
a thickness of said conductive member is 1/2 or more of that
of said insulating substrate.

1 18. A semiconductor device as claimed in claim 14, wherein:
2 a thickness of said conductive member is 1/2 or more of that
3 of said insulating substrate.

1 19. A semiconductor device as claimed in claim 8, wherein:
2 said conductive member has a thinner thickness at the central
3 portion of said opening than that of a vicinity of a side wall of
4 said opening.

1 20. A semiconductor device as claimed in claim 12, wherein:
2 said conductive member has a thinner thickness at the central

3 portion of said opening than that of a vicinity of a side wall of
4 said opening.

1 21. A semiconductor device as claimed in claim 13, wherein:
2 said conductive member has a thinner thickness at the central
3 portion of said opening than that of a vicinity of a side wall of
4 said opening.

1 22. A semiconductor device as claimed in claim 14, wherein:
2 said conductive member has a thinner thickness at the central
3 portion of said opening than that of a vicinity of a side wall of
4 said opening.

1 23. A semiconductor device as claimed in claim 15, wherein:
2 said conductive member has a thinner thickness at the central
3 portion of said opening than that of a vicinity of a side wall of
4 said opening.

1 24. A semiconductor device as claimed in claim 8, wherein:
2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 25. A semiconductor device as claimed in claim 12, wherein:
2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 26. A semiconductor device as claimed in claim 13, wherein:
2 said conductive member is made from any member selected from

3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 27. A semiconductor device as claimed in claim 14, wherein:

2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

1 28. A semiconductor device as claimed in claim 15, wherein:

2 said conductive member is made from any member selected from
3 the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

29. A semiconductor device as claimed in claim 19, wherein:
said conductive member is made from any member selected from
the group consisting of copper (Cu), nickel (Ni), and silver (Ag).

30. A semiconductor device as claimed in claim 8, wherein:
a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

31. A semiconductor device as claimed in claim 12, wherein:
a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

32. A semiconductor device as claimed in claim 13, wherein:
a thin film layer made of nickel (Ni) and a thin film layer
made of gold (Au) are sequentially disposed on a surface of said
conductive member.

1 33. A semiconductor device as claimed in claim 14, wherein:
2 a thin film layer made of nickel (Ni) and a thin film layer
3 made of gold (Au) are sequentially disposed on a surface of said
4 conductive member.

1 34. A semiconductor device as claimed in claim 15, wherein:
2 a thin film layer made of nickel (Ni) and a thin film layer
3 made of gold (Au) are sequentially disposed on a surface of said
conductive member.

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1 35. A semiconductor device as claimed in claim 19, wherein:
2 a thin film layer made of nickel (Ni) and a thin film layer
3 made of gold (Au) are sequentially disposed on a surface of said
conductive member.

1 36. A semiconductor device as claimed in claim 24, wherein:
2 a thin film layer made of nickel (Ni) and a thin film layer
3 made of gold (Au) are sequentially disposed on a surface of said
4 conductive member.

1 37. A process for the production of a wiring board, comprising
2 the steps of:

3 defining an opening at a predetermined position of a film-like
4 insulating substrate;

5 forming a conductive thin film on a principal plane of said
6 insulating substrate;

7 etching said conductive thin film to form an electric wiring

8 provided with a connection terminal covering said opening; and
9 forming a conductive member having a thickness equal to or
10 thinner than that of said insulating substrate.

1 38. A process for the production of a wiring board, comprising
2 the steps of:

3 defining an opening at a predetermined position of a film-like
4 insulating substrate;

5 forming a conductive thin film on a principal plane of said
insulating substrate;

6 etching said conductive thin film to form an electric wiring
7 provided with a connection terminal covering said opening;

8 forming a conductive member having a thickness equal to or
9 thinner than that of said insulating substrate; and
10

11 forming sequentially a thin film layer made of nickel (Ni)
12 and a thin film layer made of gold (Au) on the surfaces of said
13 electric wiring and said conductive member.

1 39 38. A process for the production of a wiring board as claimed
2 in claim 37, wherein:

3 a step for forming said conductive member is effected by forming
4 a copper (Cu) plating or a nickel (Ni) plating in accordance with
5 electroplating method.

6 40 41. A process for the production of a wiring board as claimed
7 in claim 38, wherein:

8 a step for forming said conductive member is effected by forming
9 a copper (Cu) plating or a nickel (Ni) plating in accordance with

5 electroplating method.

1 u1 42. A process for the production of a wiring board as claimed
2 in claim 37, wherein:

Q2 3 a step for forming said conductive member is effected by forming
4 a nickel (Ni) plating in accordance with electroless plating method.

1 u2 43. A process for the production of a wiring board as claimed
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by forming
4 a nickel (Ni) plating in accordance with electroless plating method.

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5 u3 43. A process for the production of a wiring board as claimed
6 in claim 37, wherein:

7 a step for forming said conductive member is effected by such
8 a manner that the inside of said opening is filled with a conductive
9 paste of silver (Ag) or copper (Cu), and said conductive paste is
6 solidified.

1 x 44. A process for the production of a wiring board as claimed
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that the inside of said opening is filled with a conductive
5 paste of silver (Ag) or copper (Cu), and said conductive paste is
6 solidified.

1 45. A process for the production of a wiring board as claimed
2 in claim 37, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that said conductive member has a thinner thickness at
5 the central portion of said opening than that of a vicinity of a
6 side wall of said opening.

1 46. A process for the production of a wiring board as claimed
2 in claim 38, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that said conductive member has a thinner thickness at
5 the central portion of said opening than that of a vicinity of a
6 side wall of said opening.

1 47. A process for the production of a wiring board as claimed
2 in claim 39, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that said conductive member has a thinner thickness at
5 the central portion of said opening than that of a vicinity of a
6 side wall of said opening.

1 48. A process for the production of a wiring board as claimed
2 in claim 41, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that said conductive member has a thinner thickness at
5 the central portion of said opening than that of a vicinity of a
6 side wall of said opening.

1 49. A process for the production of a wiring board as claimed
2 in claim 43, wherein:

3 a step for forming said conductive member is effected by such
4 a manner that said conductive member has a thinner thickness at
5 the central portion of said opening than that of a vicinity of a
6 side wall of said opening.

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